We claim:

1. A method of producing a light emitting diode or a laser diode, the method which comprises:

providing a growth substrate and a semiconductor body selected from the group consisting of a semiconductor layer, a semiconductor layer sequence, and a semiconductor layer structure grown on the substrate;

irradiating an interface boundary between the substrate and the semiconductor body or a region in a vicinity of the interface boundary with electromagnetic radiation;

absorbing the electromagnetic radiation at the interface boundary or in the vicinity of the interface boundary and inducing a material at the interface boundary to decompose; and

separating the substrate from the semiconductor body.

2. The method according to claim 1, which further comprises providing a sacrificial layer at the interface boundary and wherein the absorbing step comprises absorbing the radiation with the sacrificial layer and decomposing the sacrificial layer.

3. The method according to claim 2, wherein the sacrificial layer is formed of a material having an optical band gap smaller than a band gap of one of the two layers.

4. The method according to claim 1, wherein the absorbing step comprises inducing the decomposition by converting an energy of the absorbed radiation into heat.

5. The method according to claim 1, which further comprises forming a temperature-sensitive sacrificial layer at the boundary interface, and wherein the absorbing step comprises absorbing the radiation in a part of the substrate or the semiconductor body, diffusing the energy in form of heat into the temperature-sensitive sacrificial layer, and decomposing the sacrificial layer.

6. The method according to claim 1, wherein the absorbing step comprises inducing a decomposition of the interface boundary by generating gas at the interface boundary with energy of the absorbed radiation.

7. The method according to claim 6, wherein the step of generating the gas comprises inducing a process selected from the group consisting of chemical reactions and sublimation.

8. The method according to claim 1, which comprises applying the semiconductor body for mechanical stabilization on a support material.

9. The method according to claim 1, wherein the irradiating step comprises exposing the material to one or more light pulses.

10. The method according to claim 1, wherein the irradiating step comprises irradiating with two or more coherent laser beams, producing an interference pattern in the exposure, and increasing a local light intensity.

11. The method according to claim 8, wherein the semiconductor body consists at least partially of a material selected from the group consisting of GaN, AlN, InN, mixed crystals thereof, layer sequence, layer structures, and component structures thereof.

12. The method according to claim 2, wherein the sacrificial layer consists at least partially of a nitride material selected from the group consisting of GaN, AlN, InN, and mixed crystals thereof.

13. The method according to claim 1, wherein the irradiating step comprises exposing the interface boundary between the

substrate and the semiconductor body or the region in vicinity of the interface boundary to one or more light pulses.

14. The method according to claim 1, wherein the irradiating step comprises irradiating with two or more coherent laser beams, producing an interference pattern in the exposure, and increasing a local light intensity.

15. The method according to claim 1, wherein the substrate consists essentially of a material selected from the group consisting of sapphire, $LiAlO_2$, $LiGaO_2$, $MgAl_2O_4$, $ScAlMgO_4$, and SiC.

16. The method according to claim 15, wherein the substrate is a sapphire substrate and the semiconductor body includes a layer of a Ga compound selected from the group consisting of GaN and $In_xGa_{1-x}N$, and the irradiating step comprises separating the semiconductor body from the sapphire substrate by exposing through the substrate with a third harmonic of a Nd:YAG laser at a wavelength of 355 nm.

17. The method according to claim 16, which comprises pulsing the Nd:YAG with a Q-switch.